

4.2 Measuring development

Learning Outcomes

- Distinguish between GDP per capita figures and GNI per capita figures.
- Compare and contrast the GDP per capita figures and the GNI per capita figures for economically more developed countries and economically less developed countries.
- Distinguish between GDP per capita figures and GDP per capita figures at purchasing power parity (PPP) exchange rates.
- Compare and contrast GDP per capita figures and GDP per capita figures at purchasing power parity (PPP) exchange rates for economically more developed countries and economically less developed countries.
- Compare and contrast two health indicators for economically more developed countries and economically less developed countries.
- Compare and contrast two education indicators for economically more developed countries and economically less developed countries.
- Explain that composite indicators include more than one measure and so are considered to be better indicators of economic development.
- Explain the measures that make up the Human Development Index (HDI).
- Compare and contrast the HDI figures for economically more developed countries and economically less developed countries.
- Explain why a country's GDP/GNI per capita global ranking may be lower, or higher, than its HDI global ranking.

The distinction between GDP per capita and GNI per capita is explained in detail on pages 110–112.

Distinguish between Gross Domestic Product (GDP) per capita and Gross National Income (GNI) per capita

GDP is a measure of the value of all final goods and services produced in a country in a given year. No account is taken of the ownership of the **factors of production**. As long as the goods and services are produced in the country the value of them is included in GDP. GDP per capita (per person) = GDP/population. *Ceteris paribus*, the greater the size of the population the lower is GDP per capita and the smaller the size of the population the greater is GDP per capita.

GNI includes the income generated by a country's factors wherever in the world the country's factors are located. GNI is a measure of income that is earned based on the ownership of the factors. In order to calculate GNI income paid to foreign factors (such as profit made by the foreign firms) is subtracted from GDP. Then the income earned by domestically owned factors operating in foreign countries is added. The difference between them is called net property income from abroad. Therefore $GNI = GDP + \text{net property income from abroad}$. $GNI \text{ per capita} = GNI / \text{population}$.

Many developing countries try to encourage **foreign direct investment** to raise GDP. In such a country where many foreign firms own productive capacity its GDP is greater than GNP. Income earned is included in the GDP but does not often stay in the country, some of the income flows back abroad. For example, profits flow out of the country to the firms' countries of origin and foreign workers often send wages back home. This again is a loss of income. Because the income is not spent in the country it does not contribute to **economic growth**.

Compare GDP per capita figures and the GNI per capita figures for developed countries and LDCs

Model sentence: $GNI = GDP + \text{net property income from abroad}$. Therefore a country's GNI is greater than GDP when the income earned by the country's factors employed abroad is greater than the income earned by the foreign-owned factors employed in the country.

In 2013 Germany's GDP per capita and GNI per capita were both about \$42,000. This means that income earned by German factors in other countries was almost the same as income earned by foreign factors employed in Germany.

The difference between GDP per capita figures and GNI per capita figures of developed countries is usually small. For example, the figures for Singapore, Japan, the UK, France, and the US show relatively small differences. Any difference represents a relatively small percentage of GDP and, over the years, the difference

Subject vocabulary

factors of production the inputs into the production process (land, labour, capital and entrepreneurship)

foreign direct investment cross-border investment, usually by firms, that involves the acquisition of assets in a foreign country. FDI can be the purchase of a minimum of 10% of the shares of a foreign company but also includes the creation of productive capacity.

economic growth an increase in real GDP

between them changes but not by very much. Income earned by domestically owned factors abroad is similar to income earned by the foreign factors in the domestic country.

Nigeria's GDP per capita is \$1,600 and GNI per capita is \$1,400, indicating that much economic activity in Nigeria is from foreign-owned factors. A proportion of the income earned by the foreign-owned factors is not spent in Nigeria but instead flows out of Nigeria to the owners of the factors. For example oil production makes an important contribution to Nigeria's GDP but most of the factors used in the production of oil are foreign owned, therefore lots of the income leaves Nigeria as payments for the factors. For example, profits flow out of Nigeria to the owners of the foreign firms.

In China, GDP per capita in 2013 was about \$3,700 and GNI per capita was \$3,600. There has been an increase in foreign direct investment (FDI) into China in recent years but at the same time the Chinese have increased their foreign investments. Income flowing out of China as payment for foreign-owned factors is only slightly higher than income flowing in to China as payments for Chinese factors employed abroad.

Model sentence: If an LDC attracted a lot of FDI it would lead to negative net property income from abroad because the income flowing out of the country as payment for the foreign owned factors would be greater than the income flowing in to the country from domestically owned factors employed abroad.

Distinguish between GDP per capita figures and GDP per capita figures at purchasing power parity (PPP) exchange rates

In order to make comparisons of income between countries, one currency is used. The US dollar is usually used to make comparisons of national statistics. However, the **exchange rate** between two countries does not reflect the relative prices in the two countries. The purchasing power of income in one country is different to the purchasing power of income in other countries. The price of a given selection of goods and services in one country is not the same as in other countries. In order to correctly reflect the purchasing power of income, purchasing power parity is used so that the purchasing power exchange rate reflects differences in purchasing power.

For example, at the time of writing, the exchange rate between the US \$ and the UK £ was \$1 = £0.6. The exchange rate between the US \$ and the Algerian Dinar (DZD) was \$1 = 79 DZD. If the exchange rates accurately reflect the purchasing power of the currencies a basket of basic food products costing the equivalent of \$10 should cost £6 in the UK and 790 DZD in Algeria. However, 790 DZD buys more food in Algeria than £6 buys in the UK. In other words, each US dollar of income earned in Algeria can buy more goods than a dollar of income earned in the UK. If the difference in purchasing power of income is taken into account when calculating GDP per capita the result will give a more realistic comparison of the relative **standard of living** between countries.

Listed below are the IMF's figures from 2012 for GDP per capita and GDP per capita at purchasing power parity for four countries: two developed countries, the UK and Denmark, and two LDCs, Algeria and Indonesia.

Country	GDP per capita	PPP adjusted GDP per capita
Denmark	\$46,160	\$32,214
The UK	\$37,707	\$32,805
Indonesia	\$1,812	\$4,470
Algeria	\$1,191	\$3,202

Table 81.1 Source: IMF

The cost of living is very high in Denmark, therefore when this is taken into account the GDP per capita falls from \$46,160 to \$32,214, a fall of \$13,946. In the UK it falls by \$4,902. The figures tell us that the cost of living in Denmark is higher than in the UK. Developed countries have a relatively high cost of living therefore PPP adjusted GDP per capita is lower than GDP per capita.

The cost of living is relatively low in Indonesia and Algeria, therefore PPP adjusted GDP per capita is higher than GDP per capita. GDP per capita figures undervalue the standard of living in Indonesia and Algeria. PPP adjusted GDP per capita figures are more useful because it allows economists to judge the real level of poverty in LDCs.

Model sentence: LDCs have a relatively low cost of living therefore PPP adjusted GDP per capita is higher than GDP per capita.

Subject vocabulary

LDC least developed country

exchange rate the price of a country's currency in terms of another currency

standard of living the level of well-being of a person or groups of people

Synonyms

mortality..... death

Glossary

sewage a mixture of human waste and used water

Compare two health and education indicators for economically developed countries and LDCs

Set out below are the statistics from 2011/2012 on GDP per capita PPP, life expectancy, infant **mortality**, literacy rate, and teacher concentration. Infant mortality rate is measured in deaths per 1,000 for babies under the age of one. The literacy rate is the percentage of the population over the age of 15 who are able to write a short story about their lives and able to read basic texts, and teacher concentration is the number of teachers per 1,000 people.

Country	GDP per capita PPP	Life expectancy	Infant mortality	Literacy rate	Teacher concentration
Australia	\$41,954	83 years	4.49	96%	5.6
Japan	\$35,855	84.6 years	2.17	99.91%	5
Italy	\$29,813	83.1 years	3.33	99%	7.2
Angola	\$6,092	52 years	81.75	70.4%	1.28
India	\$3,843	70 years	42	74%	2.4
Kenya	\$1,781	60 years	42	87%	3.5

Table 81.2 Source: CIA *The World Factbook*

The PPP adjusted GDP per capita is included in the statistics in order to show the relationship between income and the health and educational attainment of the citizens. Life expectancy and infant mortality rates are determined by a number of factors. Governments in high income countries have more resources than governments in LDCs.

A developed country usually has clean water supply, treatment of **sewage**, food supplies, health and education services, and political stability. LDCs do not have as much income to invest in these services. Availability of food supplies, health services, and clean water is not as widespread in LDCs as in developed countries and because of this infant mortality rates are higher and life expectancy lower. Many LDCs are affected by religious conflict and civil war, resulting in many deaths and the disruption of food supplies, thereby lowering life expectancy.

Literacy rates are directly related to the number of children and young people who are able to go to school. In developed countries the law states all people must go to school up to a certain age usually 16 or 18. In LDCs the proportion of young people going to school regularly is much less. The number of teachers per 1,000 people is an indication of the wealth of a country because most teachers are employed by the government. The LDCs have a much higher birth rate than developed countries so have a greater proportion of the population at school age. LDCs have a relatively low proportion of teachers. Therefore class sizes are usually much bigger in LDCs than in developed countries. With a smaller proportion of children attending school along with bigger class sizes it is not surprising that literacy rates are relatively low. The educational opportunities available are directly related to the wealth of the country as can be seen in the statistics above.

Model sentence: PPP adjusted GDP per capita of a country is the most important determinant of the state of the health and educational attainment of its population.

Although GDP per capita PPP is an important determinant it is not a perfect indication of welfare. For example, Angola's GDP per capita PPP is much higher than India's and Kenya's, but Angola's life expectancy and literacy rates are lower and infant mortality is much higher than in India and Kenya.

Compare and contrast the HDI figures for developed countries and LDCs

The Human Development Index (HDI) is a measure of economic development. It provides an index of economic development based on three variables: life expectancy at birth, educational attainment (which includes the adult literacy rate and the ratio of children and young people who attend primary, secondary and tertiary school), and PPP adjusted GDP per capita.

The performance of a country for each variable is given a value between 0 and 1 and then the scores are put together to produce one index value. Countries are placed in one of four groups:

Group	HDI
Very high human development	0.9 and over
High human development	0.8 – 0.899
Medium human development	0.5 – 0.799
Low human development	< 0.5

Table 81.3 Source: UN *Development Report 2013*

Listed in Table 81.4 are the four countries in 2013 with the highest HDI and the four countries with the lowest HDI.

Country	HDI 2013
Norway	0.955
Australia	0.938
United States	0.937
Netherlands	0.921
Chad	0.340
Mozambique	0.327
Congo	0.304
Niger	0.304

Table 81.4 Source: UN Development Report 2013

Country	GNI per capita	HDI	World ranking
UAE	\$59,993	0.846	30
Singapore	\$52,569	0.866	26
Australia	\$34,431	0.921	2
Czech Republic	\$21,405	0.866	26

Table 81.5 Source: UN Development Report 2013

The relationship between economic development and PPP adjusted GDP per capita is clearly shown. The countries with the highest HDI have high PPP adjusted GDP per capita. Those countries that have the lowest HDI have very low PPP adjusted GDP per capita. This is because developed countries have used their factors to earn relatively high incomes and have been able to save. **Savings** can be used for **investment in physical capital** and **human capital** increasing **productivity** and **economic growth**. Governments of these countries have the resources to invest in education and health services, thereby improving life expectancy, educational attainment, and school enrolment.

GDP per capita is only one measure of **economic development**. On its own it does not give an accurate picture of the well-being of the citizens of a country. GDP per capita = GDP/population. But income in the country might be distributed very unequally, therefore a relatively few number of people might be very rich whilst most of the population are relatively poor. HDI measures more than one indicator of economic development and may give a more accurate picture of the well-being of a country's citizens.

The United Nations Human Development Report 2011 set out the GNI per capita and HDI for all countries. Listed above in Table 81.5 are the figures for four countries.

These statistics show that GNI per capita is not always a valid indicator of human development and well-being. Australia has a much lower GNI per capita than UAE and Singapore but its HDI is a lot higher. And UAE's GNI per capita is more than double that of the Czech Republic but it has a lower HDI.

Explain why a country's GDP per capita global ranking may be lower, or higher, than its HDI global ranking

There is a strong relationship between a country's GDP per capita and its HDI. A country with a relatively high GDP per capita is more likely to have a relatively high HDI than a country with a low GDP per capita. This is because GDP per capita is one of the variables used to calculate HDI. Therefore a country with high GDP per capita is likely to have a higher HDI global ranking than a country with low GDP.

If a country's GDP per capita is relatively high and its HDI is relatively low, as is the case for the United Arab Emirates and Singapore (see Table 81.5), it is an indication that the countries are not using national income effectively to improve the health and educational attainment of the citizens. It is also an indication that income is distributed very unequally. The **Gini-coefficient** in 2011 of both the United Arab Emirates and Singapore is relatively high but for Australia and the Czech Republic it is relatively low. For example Singapore's Gini-coefficient is 0.48 and the Czech Republic's is 0.26 which indicates that income is much more equally distributed in the Czech Republic than in Singapore (see pages 164–73 for a detailed explanation of the Gini-coefficient and distribution of income and equity).

If income is distributed very unequally it limits the number of people who can afford to buy education and health services. Most countries with relatively low Gini-coefficients use **progressive taxes** to redistribute income. Government tax revenue is used to provide education and health services to all people leading to higher literacy rates and school attendance rates and therefore a higher HDI.

Test your understanding of this unit by answering the following questions

- Is GDP per capita a valid indicator of the well-being of the citizens of a country?
- Distinguish between GDP per capita and PPP adjusted GDP per capita.
- Why might HDI be considered a better indicator of economic development than GDP per capita?

Subject vocabulary

savings income that is not spent or paid in tax

investment the addition to capital stock

physical capital any manufactured good that is used in the production of other goods and services such as machinery and buildings

human capital this relates to the store of knowledge and the set of skills that a worker possesses which can be used in the production process. The higher the value of human capital the more productive the worker is. Human capital can be improved through investment in education and training.

productivity the quantity of output per unit of input

economic growth an increase in real GDP

economic development the sustained increase in the standard of living and well-being of the population of a country

Gini-coefficient the ratio of the area under the Lorenz curve to the area under the 45 degree diagonal (line of perfect equality) on a graph of the Lorenz curve. It is a number between zero and one. Zero corresponds to perfect equality and one to perfect inequality.

progressive taxes a system of taxation in which the rate of tax increases with income